Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation	)))	ET Docket No. 93-62

To: The Commission

COMMENTS OF PAGING NETWORK, INC.

I. INTRODUCTION

Paging Network, Inc. ("PageNet"), by its attorneys, and pursuant to Section 1.415 of the Commission's Rules, 47 C.F.R. § 1.415, hereby comments on the proposals set forth in the above-captioned Notice of Proposed Rulemaking ("NPRM"), ET Docket No. 93-62, 8 FCC Rcd 2849 (1993).[1] In this proceeding, the Commission proposes to amend and update the guidelines and procedures used for evaluating the environmental effects of radiofrequency ("RF") radiation from FCC regulated facilities.

A. Statement of Interest

PageNet is the largest paging company in the United States. It provides both private and common carrier service to over 2.8 million subscribers. PageNet holds well over 60 common carrier paging licenses and 470 private carrier paging licenses,

[1] The deadline for filing comments in this proceeding was extended through January 25, 1994. See, Order Extending Time for Comments and Reply Comments, DA 94-34 (rel. January 10, 1994).

representing over 2300 transmitters nationwide. Moreover, PageNet adds additional transmitters each month to support its existing systems as well as to expand into new markets.

PageNet is an interested party to this proceeding because actions taken by the Commission will directly affect the regulatory environment in which PageNet's services are being provided and the burdens which paging carriers must bear in the conduct of their business.

B. Summary of NPRM and PageNet's Position

The Commission initiated this proceeding to seek comments on its proposal to incorporate the revised standards for RF exposure adopted by the American National Standards Institute ("ANSI") in association with the Institute of Electrical and Electronic Engineers, Inc. ("IEEE"). See, ANSI IEEE C95.1-1992. The revised RF standards are generally more restrictive than those currently specified in the Commission's rules. In particular, they extend the frequency range under consideration to cover frequencies from 3 kHz to 300 GHz, and specify two sets of exposure recommendations (i.e., one for "controlled" and another for "uncontrolled" environments).[2] The proposed guidelines also, for the first time, include specific restrictions on currents induced in the human body by RF fields. Finally, the proposed guidelines will affect

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[2] The ANSI IEEE standard states that "[c]ontrolled environments are locations where there is exposure that may be incurred by persons who are aware of the potential for exposure as a concomitant of employment, by other cognizant persons, or as the incidental result of transient passage . . ." "Uncontrolled environments" are "locations where there is the exposure of individuals who have no knowledge or control of their exposure." See, NPRM at 2851.

the operation of transmitters that were previously "categorically excluded" from regulation (i.e., those used to provide common and private carrier land-mobile communications systems).[3]

The Commission has asked commenters to address the following subjects:

1. the criteria to be applied in determining which exposure limits would apply to the various radio operations authorized by the Commission;

2. the manner in which proof of compliance should be measured and submitted for low power devices (i.e., whether such information should be proffered as part of the equipment authorization process and, if so, what form such showings should take); and

3. information related to the existing categorical exclusions from the RF exposure rules (i.e., whether it is appropriate to maintain the individual exclusions; any changes to the rules that may be necessary to ensure compliance with the RF guidelines; the impact of eliminating an exclusion from the RF exposure rules for specific services; and, information on how affected facilities and operations could demonstrate compliance with the new guidelines).

PageNet supports the Commission's proposal to adopt the 1992 ANSI IEEE standard for evaluating the environmental effects of RF radiation. Where new scientific data suggest the need for revised exposure standards, it is appropriate for the Commission to reevaluate its rules applying those standards to the licensing of radiating facilities. Since the application of new standards to

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[3] Many low-power, intermittent, or normally inaccessible RF transmitters and facilities were categorically excluded from the FCC's rules regarding RF radiation based on calculations and measurement data indicating that they would not cause exposures that would violate the ANSI guidelines under normal and routine conditions of use. See, NPRM at 2849 citing, Second Report and Order, Gen. Docket No. 79-144, 2 FCC Rcd 2064 (1987); and Erratum, 2 FCC Rcd 2526 (1987).

the existing radio environment has the potential for causing significant compliance consequences, the Commission is requesting comment on the appropriateness of proposed new rules.

These comments will address PageNet's major concern in this proceeding, which is the possible modification of the categorical exclusion that has exempted private and common carrier paging operations from environmental processing under the current standards adopted in 1982. The exclusion reflects the fact that the risk of exposure to unsafe levels of radiation from transmitters licensed in the land mobile radio services has been found to be extremely limited. In PageNet's view, this continues to be true, even under the revised maximum permissible exposure ("MPE") levels adopted by ANSI/IEEE in 1992. Therefore, PageNet supports retention of the exclusion for both private and common carrier paging systems. Should the Commission nevertheless find the record sufficient to justify modification of the exclusion, PageNet submits that any new rules must allow a reasonable period for licensees to bring existing facilities into compliance and must place the burden of establishing compliance on the site owner -- the only entity in a position to have all the radiation and engineering data needed to make that evaluation. In situations where multiple licensees share a single site, it would be virtually impossible, highly inefficient and wasteful of both the Commission's and licensees' resources to make the assessment on a station by station or application by application basis.

II. DISCUSSION

As is typical of land-mobile communications providers in general and the paging industry in particular, PageNet's transmission facilities are normally located at sites and on towers that are shared by a multiplicity of licensees. Its stations transmit from antenna farms, community towers and building rooftop installations shared by other licensees whose identity and operating parameters are usually unknown. Therefore, the Commission's treatment of such environments and the licensees that share them, for purposes of RF exposure analysis, is vitally important to PageNet.

In the NPRM, the Commission states that some of the current categorical exclusions may not be consistent with the revised ANSI/IEEE guidelines. It notes that this may be true of some land-mobile services and requests comment and information relating to those exclusions. Attached hereto is a recent study prepared by Raymond C. Trott Consulting Engineers, Inc. ("RCT"), reporting the results of a radiation analysis based on actual measurements at a highly-radioed rooftop site shared by multiple land-mobile licensees in Dallas, Texas.[4] Generally, public access to such areas is carefully restricted.

The RCT test results show only one area in the Southwest corner of the roof where the ANSI/IEEE standard for controlled areas was exceeded. In most other areas on the roof, the

[4] A total of more than 100 installations are set out in two grids in the Northeast and Southwest corners of the roof.

measurements showed radiation levels low enough to meet not just the controlled areas standard, but also the more restrictive uncontrolled area/general public standard. Moreover, within an equipment room located on the floor immediately below the roof, measurements showed a mere fraction (1.8%) of the maximum radiation allowed, well below both the controlled (100%) and uncontrolled (20%) MPE limits.

The RCT study is useful in demonstrating that categorical exclusion remains appropriate. It shows that, even under the revised ANSI/IEEE guidelines, the risk posed by numerous land-mobile facilities at a confined common site would normally be well below even the reduced levels allowed for uncontrolled areas. Any risks posed to workers in controlled areas could be adequately addressed by requiring that warning signs be posted and work procedures developed and implemented.

If, notwithstanding findings such as these, the Commission should decide that the record in this proceeding is sufficient to warrant modification of the categorical exclusion that currently exempts paging operations, PageNet strongly recommends that licensees of existing facilities be given sufficient time to evaluate and demonstrate compliance with the standards,[5] and that site owners be tasked with the job of assessing compliance and

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[5] In other services, such as the broadcast services, where radiation levels are typically far greater than for land-mobile, and specifically, paging operations, licensees were given until their next renewal to evaluate their compliance with RF limits. PageNet recommends that the Commission similarly give paging licensees until their next renewal to certify their compliance.

certifying to the Commission as to that compliance. Requiring individual licensees to so certify would require numerous calculations or measurements of the aggregate RF radiation levels at each multiple-transmitter location in order to ensure that each is in compliance with the Commission's revised standards. Moreover, these findings would need to be continually updated as subsequent licensees arrive at the site location. This process would require a large expenditure of time and money and, for the following reasons, would impose an unduly burdensome hardship on individual licensees.

First, the information necessary to calculate the cumulative RF levels at multiple-transmitter locations is not readily available to individual licensees. In particular, there does not exist a single data base that can be accessed by licensees to determine information such as the effective radiated power, antenna pattern, and output power for each antenna system at a given multiple-transmitter location.

Second, to hire an engineer to measure the cumulative effect of such multiple-transmitter locations will be extremely time-consuming and expensive. For example, such a study could run an individual licensee up to $1,000 per site. A licensee such as PageNet, that has over 1,000 antenna site locations, could have to expend over 1 million dollars just to verify its system's compliance.

Finally, even after a licensee like PageNet had verified that its entire system was in compliance, it would still have no control over subsequent licensing at a given location. In

particular, once it has evaluated the cumulative RF levels at all of its multiple-transmitter locations, it would have no way of knowing when a new licensee places an antenna at a particular location, or the new licensee's operating parameters. By contrast, however, the multiple-transmitter site owner would know when additional antennas are placed in operation, and would be able to readily access its tenants' operating parameters.

Thus, PageNet believes that with regard to multiple-transmitter locations, it would be most reasonable for the Commission to place the burden of verifying compliance with its new RF guidelines on the site owner. The site owner would have easy access to its individual tenants and, therefore, would be most successful in accumulating, updating and reporting RF data to the Commission. Moreover, such an approach would be far more efficient in the use of both public and private resources. Site owners would only be responsible for accumulating and maintaining data on a single multiple-transmitter location, as opposed to requiring each individual licensee on the tower to assemble and continuously update that same information. Finally, the costs associated with calculating aggregate RF compliance could be factored into a lease agreement and shared equitably among all of the licensees operating at a single site.

Pursuant to Section 503(b)(5) of the Communications Act of 1934, as amended, (the "Act"), 47 U.S.C. §503(b)(5), the Commission has general authority to subject non-licensees to forfeitures for violations of its rules where, prior to being fined, the non-licensee is warned and provided an opportunity to

bring its operations into compliance.[6] This broad FCC authority has been recently expanded by Congress to provide that non-licensee tower owners may be subject to forfeiture for violations of the Commission's radio tower painting and/or lighting requirements without a prior citation under certain conditions. See, Amendment of Section 1.80(d) of the Rules, FCC 93-195, released May 3, 1993.[7] Thus, the Commission could, without Congressional intervention and pursuant to Section 503(b)(5) of the Act, subject non-licensee multiple antenna site owners to forfeitures for noncompliance with the Commission's new RF guidelines, by providing the necessary prior citation. Similarly, as provided for by Congressional amendment in the case of painting and lighting violations, the Commission could be empowered to assess such forfeitures without prior notice.

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[6] Section 503(b)(5) of the Act provides, in pertinent part that:

> No forfeiture liability shall be determined under this subsection against any person, if such person does not hold a license, permit, certificate, or other authorization issued by the Commission, unless, prior to the notice required by paragraph (3) of this subsection or the notice of apparent liability required . . . by this subsection, such person (A) is sent a citation of the violation charged; (B) is given a reasonable opportunity for a personal interview . . .; and (C) subsequently engages in conduct of the type described in the citation. 47 U.S.C. § 503(b)(5) (emphasis added).

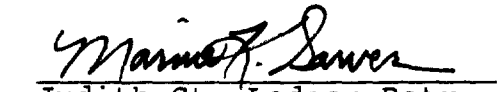
[7] The amendment to Section 503(b)(5) allows the Commission to assess forfeitures for violations of the painting and/or lighting requirements if the non-licensee tower owner has previously received notice of the obligations imposed by Section 303(q) from the Commission or the permittee or licensee who uses the tower. Id.

III. CONCLUSION

While PageNet supports adoption of the 1992 ANSI/IEEE standard, it recommends retention of the categorical exclusion for stations licensed in the private and common carrier paging services. In the event the exclusion is modified as to such stations, licensees must be afforded adequate time to assess and ensure compliance with the new standards. Moreover, the responsibility for reporting and ensuring compliance with the revised RF radiation guidelines must be made to rest with the owner of the transmitter site.

Respectfully submitted,

PAGING NETWORK, INC.

By: 

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January 25, 1994

RCT

ENGINEERING REPORT
RF RADIATION SURVEY - BRAMALEA TEXAS, INC.
NATIONSBANK BUILDING / 901 MAIN STREET, DALLAS, TEXAS

Introduction

Bramalea Texas, Inc. (BTI) authorized Raymond C. Trott Consulting Engineers, Inc. (RCT) to conduct a radio frequency radiation (RFR) survey. Raymond C Trott, president of RCT, made the measurements on August 17, 1993 at the NationsBank Building, 901 Main Street, Dallas, Texas. This report describes the measurements and their locations.

The ANSI/IEEE Standard

The maximum permissible exposures (MPEs) referenced in this report are as set forth by the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). ANSI/IEEE C95.1-1992, *Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*, gives recommendations to prevent harmful effects in human beings exposed to electromagnetic fields The recommendations apply to exposures in both controlled and uncontrolled environments.

Controlled environments are areas where there is a potential for exposure to people who are aware of the potential for exposure. A good example would be a radio technician in an area close to a RF radiation source. The area of concern could be an equipment building housing transmitters either on the ground, on a tower, or on a building top. Uncontrolled environments are areas where there is a potential for exposure to individuals who have no knowledge or

control of their exposure level. MPE for uncontrolled environments is generally less than those for controlled environments. Examples of uncontrolled environments include public areas or even residences near broadcast facilities where the public could be exposed to RF radiation.

Emissions at this site are in the 35 megahertz (MHz) to 930 MHz frequency range. The MPEs for uncontrolled environments range from 0.2 mW/cm² at 35 MHz to 0.6 MHz at 930 MHz. The MPEs for controlled environments range from 1 mW/cm² at 35 MHz to 3.1 mW/cm² at 930 MHz.

In addition to exposure to electromagnetic fields, the standard sets MPEs for induced- and contact-radio-frequency currents below 100 MHz. Because of the low levels of the radio-frequency electromagnetic fields illuminating objects at the site, there is virtually no potential for exposure due to induced or contact currents.

Methodology

Electromagnetic field strength measurements were made using a Narda, model 8716, serial number 10053, electromagnetic radiation monitor calibrated in units of milliwatts per square centimeter (mW/cm²). The Narda, model 8722B, serial number 08025, isotropic conformal electric field probe was used for all field measurements. The electromagnetic radiation monitor and probe were calibrated as a system by the manufacturer in July 1993.

The test set processes all incident radio signals regardless of number, frequency, direction, polarization or modulation characteristics. The meter normalized each reading to a percent of the ANSI/IEEE Standard for Safety levels with respect to human exposure to RF electromagnetic fields.

RCT

Exhibits RCT-3 and RCT-4 show the locations for these tests. The meter was set in the maximum hold mode which displays maximum average detected exposure level. Each reading encompassed a varying elevation from two to six feet above floor or roof level. At each location, the RF radiation was sampled until the maximum reading was stabilized for at least one minute. Never was the duration of the measurements less than two minutes.

Results

Exhibit RCT-1 is a table showing the results of the RF radiation measurements conducted in the RF equipment room of the subject facility. Exhibit RCT-2 shows the measurement values on the rooftop. The values are shown in percentage of the ANSI/IEEE Standard. Thus, for controlled environments, the MPE is 100%. For uncontrolled environments, the MPE is 20%.

1. **Rooftop** - the only area that exceeded the 100% MPE was the southwest antenna grid. The maximum valued measured was 125% near antenna no. 74. For the northeast antenna grid, the maximum value measured was 80%.

2. **The lower deck of the rooftop** - no measurements exceeded 26%. The lower deck primarily had readings less than 20% (uncontrolled MPE).

3. **RF equipment room** - there were no measurements greater than 1.8 % which is well below both the controlled and uncontrolled MPEs. The walkways just outside the RF equipment room, the window-washer equipment area, had no measurement values greater than 0.5 %.

Recommendations

For the RF equipment room and the outside walkways, the measurements show exposure levels

RCT

to be well below the MPEs for controlled and uncontrolled environments. Therefore, no changes are necessary to prevent the overexposure of workers or the public.

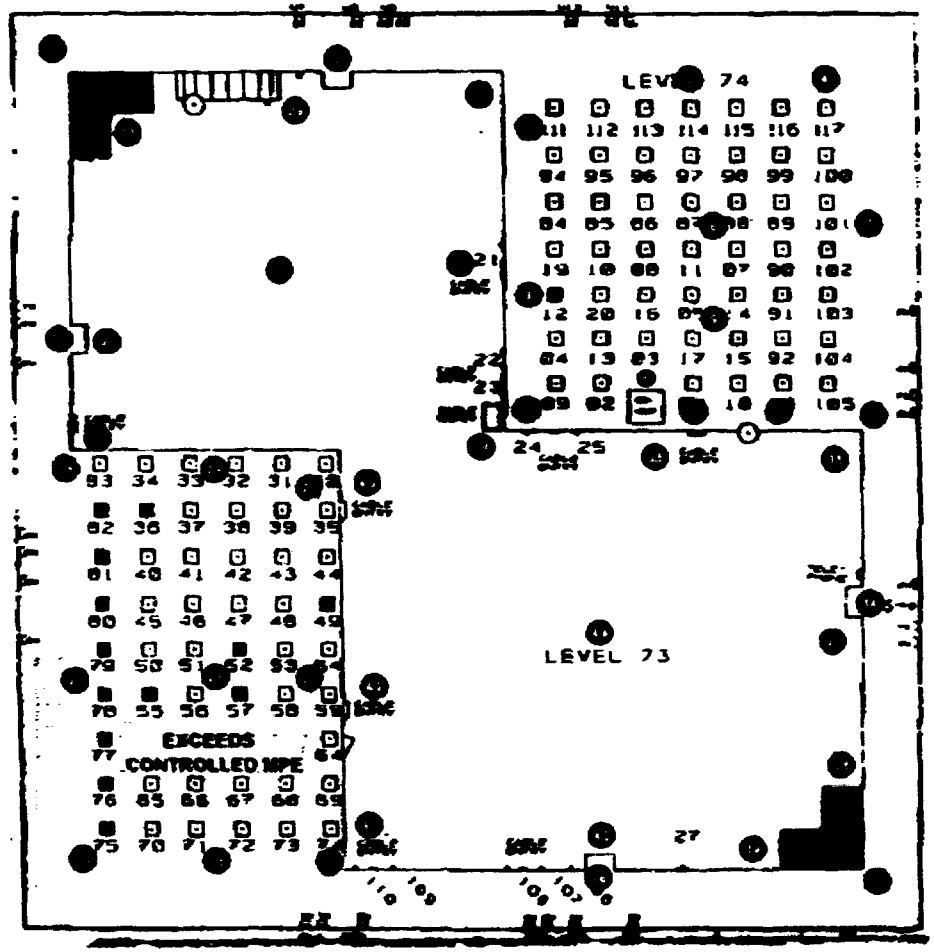
For the rooftop levels, the controlled MPE limit was exceeded at the southwest antenna grid. The uncontrolled limit (public) was exceeded over several areas including the lower deck.

RCT recommends that all persons who have access to the rooftop be adequately briefed regarding their safety responsibilities on the rooftop. In addition, BTI should develop written policies detailing the restricted areas, visiting hours, and rooftop and lower deck area access procedures.

/s/ Raymond C. Trott

Raymond C. Trott, P.E.
August 24, 1993

ROOFTOP RF RADIATION MEASUREMENTS



LOCATION	READINGS (% OF ANSI/IEEE S1?) CONTROLLED	UNCONTROLLED	
1	[illegible]	[illegible]	
2	[illegible]	[illegible]	
3	[illegible]	[illegible]	
4	[illegible]	[illegible]	
5	[illegible]	[illegible]	
6	[illegible]	[illegible]	
7	[illegible]	[illegible]	
8	[illegible]	[illegible]	
9	[illegible]	[illegible]	
10	[illegible]	[illegible]	
11	[illegible]	[illegible]	
12	[illegible]	[illegible]	
13	[illegible]	[illegible]	
14	[illegible]	[illegible]	
15	[illegible]	[illegible]	
16	[illegible]	[illegible]	
17	[illegible]	[illegible]	
18	[illegible]	[illegible]	
19	[illegible]	[illegible]	EXCEEDS CONTROLLED MPE
20	[illegible]	[illegible]	
21	[illegible]	[illegible]	
22	[illegible]	[illegible]	
23	[illegible]	[illegible]	
24	[illegible]	[illegible]	
25	[illegible]	[illegible]	
26	[illegible]	[illegible]	
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Consulting Engineers, Inc.
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